REMARKS

Applicant is puzzled to note that the Office Action Summary says on the one hand under Disposition of Claims, that Claim 10 is allowed; on Page 4, under Allowable Subject Matter, that Claim 10 is allowed; and on the other hand Page 3, under Claim Rejections, says that Claim 10 is rejected. To expedite processing, applicant will address statements put forth on OA page 3 regarding this claim.

Claim Rejections

Claim 10 was rejected on OA page 3 because of the wording "the sensed energy's frequency varies with a rate in excess of a predetermined threshold".

To address this statement, Figure 4 was revised to include component labels, which does not introduce new matter. As shown, capacitor 402 is disposed with one of its terminals tied to the control voltage of a PLL 410 and the other terminal tied to the input of a Schmitt trigger 415. As a consequence, capacitor 402 will couple control voltage changes at PLL 410 over to the input of Schmitt trigger 415. As the PLL changes its control voltage, a corresponding charge buildup on the Schmitt trigger input will change the Schmitt trigger output state if the control voltage changes rapidly enough. This supports the claim language. The predetermined threshold is a result of the time constant between the capacitor 402 and the inherent finite input resistance of the Schmitt trigger 415.

Claim 25 was rejected because of the language "...a series pass switch element having a switch output that acts as a one-way diode when not actuated, and as a negligible resistance when actuated; a coupling circuit... the harmonic content of the electrical energy is above a first predetermined threshold..."

Support for claiming a series pass switch element, with internal rectifier is on page 5 lines 22-25 of the original disclosure: "Conveniently, the internal parasitic diode of the MOSFET is utilized as a rectifying device, with one end being connected to ground. Whereas the diode normally goes from source to drain with the cathode being connected

to the drain, in this case the diode is 'pointing up' at the diagram, thereby serving as a rectifying device for the DC voltage generated at the bottom of D2."

Returning to the claim wording, the "...first predetermined threshold" is inherent through the collective behavior of transformer T2 and capacitor C6, selectively filtering frequency content; and through diodes D11 and D12 which along with C7 convert this filtered energy to DC, in turn activating the MOSFET upon reaching its switch-on voltage. The physical effect of these elements combines to produce a threshold. The fact that a threshold might be difficult to calculate makes it no less predetermined.

Claim 26 includes the wording "the voltage present at the node is below a second predetermined threshold". This voltage threshold is due to the internal switch off voltage of the Schmitt trigger comprised by Q4 and Q5. Page 6, lines 2 through 11 in the original disclosure say that the current developed with a lamp load present will produce a voltage around 3V at point X, the input of the Schmitt trigger. As discussed regarding claim 10 above, the first predetermined threshold represents a situation in which high frequency content in the lamp load circuit causes Q6 in Figure 3 to switch on. This in turn pulls down point X. This second predetermined threshold relates to a second stage of the circuit past Q6 and point X, namely the Schmitt Trigger comprised by Q4 and Q5. In summary, the sequence of events within the circuit to perform arc detection comprises the high frequency present from the arc activating Q6, which in turn pulls down point X, which in turn causes the Schmitt Trigger to activate.

However, the second predetermined threshold allows for shutoff in yet another mode of operation, namely when little or no current flows through the lamp load path. In this case, the point X will be under the threshold voltage of the Schmitt Trigger because insufficient voltage is developed from energy coupling from T2 into associated circuitry reaching to point X.

Claim 30 says "... too little or too much energy above a [the] fundamental frequency, or insufficient total energy." This combines functionality featured in Claims 25 and 26, representing two different modes of operation that are possible from the same circuit given two different abnormal load scenarios. This is a large part of the patentable novelty of this invention.

This combination of lower current from the lamp not present or inactive causing shutoff, along with a higher frequency energy threshold which also causes shutdown from arcing, is both supported by the original disclosure and is something not associated with the prior art. Because of the dual modes of operation of his circuit, Applicant maintains his invention is both enabled and novel and therefore merits patentability.

To expedite prosecution, questions may be directed to the undersigned agent by telephone, facsimile, or email.

Respectfully submitted,

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